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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,828	09/12/2003	Gary G. Li	SC12295ZK	7865
23125	7590	08/11/2004	EXAMINER	
FREESCALE SEMICONDUCTOR, INC. LAW DEPARTMENT 7700 WEST PARMER LANE MD:TX32/PL02 AUSTIN, TX 78729			NGUYEN, DILINH P	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,828

Applicant(s)

LI ET AL.

Examiner

DiLinh Nguyen

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-17,20-25 and 27-32 is/are rejected.
- 7) ☒ Claim(s) 2,18,19 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/12/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-8, 10-17, 23-25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Joiner et al. (U.S. Pat. 5683944).

- Regarding claims 1, 23, Joiner et al. disclose a package electronic device comprising:

a die 18 ;

a lead frame, the die being located with respect to the lead frame at a first die mounting location of the lead frame, the lead frame comprising:

a first flag structure 36 having a first side, the first side including a portion of the die mounting die mounting location;

a second flag structure 36 having a first side, the first side of the second flag structure including a portion of the die mounting location; and

a structure 34 connected to the first flag structure and to the second flag structure, the structure including a bend portion, the structure including at least a portion located between the first flag structure and the second flag structure (figs. 4-5, column 4, lines 1-35).

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- Regarding claim 3, Joiner et al. disclose that the structure 34 is integrally connected to the first flag structure and to the second flag structure (fig. 4).
- Regarding claim 4, Joiner et al. disclose that the bend portion includes a first portion connected to the first flag structure, and a second portion extending from the first portion (fig. 4).
- Regarding claim 5, Joiner et al. disclose that the second portion extends from the first portion at generally a 90 degree angle (fig. 4).
- Regarding claim 6, Joiner et al. disclose that the structure 34 includes a third portion extending between the second portion and the second flag structure (fig. 4).
- Regarding claim 7, Joiner et al. disclose that the third portion extends from the second portion at generally a 90 degree angle (fig. 4).
- Regarding claim 8, Joiner et al. disclose that a bend of the bend portion is generally 90 degrees (fig. 4).
- Regarding claim 10, Joiner et al. disclose that the die is attached to the first side of the first flag structure and to the first side of the second flag structure at the die mounting location (fig. 5, column 4, lines 15-17).
- Regarding claims 11 and 27, Joiner et al. disclose that at least a portion of the die and at least a portion of the lead frame is encapsulated with an encapsulant 30 (fig. 5, column 4, lines 15-17).
- Regarding claim 12, Joiner et al. disclose that a third flag structure having a first side, the first side including a portion of the die mounting location; a second

structure 34 (the connection member on a left hand side) connected to the first flag structure and to the third flag structure, the second structure including a second bend portion, at least a portion of the second structure located between the first flag structure and the third flag structure (fig. 4).

- Regarding claim 13, Joiner et al. disclose that a fourth flag structure having a first side, the first side of the fourth flag structure including a portion of the die mounting location; a third structure (the connection member on a right hand side) connected to the second flag structure and to the fourth flag structure, the third structure including a third bend portion, the third structure including at least a portion located between the second flag structure and the fourth flag structure (fig. 4).
- Regarding claim 14, Joiner et al. disclose that a fourth structure (the connection member 34 on the top) connected the third flag structure and to the fourth flag structure, the fourth structure including a fourth bend portion, the fourth structure including at least a portion located between the third flag structure and the fourth flag structure (fig. 4).
- Regarding claim 15, Joiner et al. disclose that a third flag structure having a first side, the first side including a portion of the die mounting location; a fourth flag structure having a first side, the first side of the fourth flag including a portion of the die mounting location; and a second structure (the connection member 34 on the top) connected to the third flag structure and to the fourth flag structure, the second structure including a second bend portion, at least a portion of the

second structure located between the third flag structure and the fourth flag structure (fig. 4).

- Regarding claim 16, Joiner et al. disclose that the structure 34 is generally located in a plane defined on a first side by the first side of the first flag structure and the first side of the second flag structure, wherein the plane is defined on a second side by a second side of the first flag structure and a second side of the second flag structure, the second side of the first flag structure is an opposing side of the first side of the first flag structure, the second side of the second flag structure is an opposing side to the first side of the second flag structure (fig. 4).
- Regarding claims 17, 24, Joiner et al. disclose that wherein at least a portion of the structure 34 has generally an "S" form (fig. 4).
- Regarding claim 25, Joiner et al. disclose that the first flag structure has a first edge, the structure extending from the first edge, the second flag structure has a second edge, the structure extending from the second edge, wherein the first edge is generally faces the second edge.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9, 20-21, 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joiner et al. (U.S. Pat. 5683944) in view of Darrer (DE 10106838).

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- Regarding claims 9, 21 and 28, Joiner et al. substantially disclose all the limitations as claimed above except the die includes a transducer and a second die located over the die in a stacked die configuration.

However, Darrer discloses that a die 30 includes a transducer and a second die 20 located over the die 30 in a stacked die configuration (fig. 1, abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device structure of Joiner et al. by having a stacked die configuration and the transducer die with the structure as set forth above because as taught by Darrer, such the stacked die configuration which provide the known purpose of obtaining a semiconductor module of high density and high performance with a large capacity.

- Regarding claims 20, 30 and 32, it would have been obvious that the package electronic device or the apparatus as claimed above is generally characterized as an automobile or as a video game in order to apply the device in a particular application.
- Regarding claim 29, Darrer discloses that a controller, the controller operably coupled to circuitry of the die (fig. 1, abstract).
- Regarding claim 31, Darrer discloses that the die includes circuitry for an inertial sensor (fig. 1, abstract).

3. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joiner et al. (U.S. Pat. 5683944) in view of Matsuura et al. (U.S. Pat. 6399423).

Joiner et al. substantially disclose all the limitations as claimed above except the packaged electronic device is characterized as a Quad Flat No-Lead (QFN) packaged electronic device.

Matsuura et al. disclose that a packaged electronic device is characterized as a Quad Flat No-Lead (QFN) packaged electronic device (figs. 2-3, column 5, lines 31-35). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device structure of Joiner et al. by having the QFN packaged device with the structure as set forth above as taught by Matsuura et al., such QFN packaged device would reduce the size of the package semiconductor device.

Allowable Subject Matter

Claims 2, 18-19 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DLN

A handwritten signature in black ink, appearing to read 'Hoa Pham', with a long horizontal flourish extending to the right.

HOAI PHAM